

TITLE 13 and 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER PROPOSED CALIFORNIA GREENHOUSE GAS EMISSIONS STANDARDS FOR MEDIUM- AND HEAVY-DUTY ENGINES AND VEHICLES AND PROPOSED AMENDMENTS TO THE TRACTOR-TRAILER GHG REGULATION

The California Air Resources Board (CARB or Board) will conduct a public hearing at the time and place noted below to consider approving for adoption of the proposed California greenhouse gas (GHG) standards for medium- and heavy-duty engines and vehicles (Phase 2) and the proposed amendments to CARB's existing Tractor-Trailer GHG Regulation.

DATE: February 8, 2018

TIME: 9:00 A.M.

LOCATION: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a meeting of the Board, which will commence at 9:00 a.m., February 8, 2018, and may continue at 8:30 a.m., on February 9, 2018. Please consult the agenda for the hearing, which will be available at least ten days before February 8, 2018, to determine the day on which this item will be considered.

WRITTEN COMMENT PERIOD AND SUBMITTAL OF COMMENTS

Interested members of the public may present comments orally or in writing at the hearing and may provide comments by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on December 22, 2017. Written comments not physically submitted at the hearing must be submitted on or after December 22, 2017, and received **no later than 5:00 p.m. on February 5, 2018**. CARB requests that, when possible, written and email statements be filed at least ten days before the hearing to give CARB staff and Board members additional time to consider each comment. The Board also encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action. Comments submitted in advance of the hearing must be addressed to one of the following:

Postal mail: Clerk of the Board, California Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

AUTHORITY AND REFERENCE

This regulatory action is proposed under the authority granted in California Health and Safety Code, Sections 38501, 38505, 38510, 38560, 38560.5, 38580, 39010, 39500, 39600, 39601, 40000, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43107, 43200, 43200.1, 43210, and 43806; and Section 28114, Vehicle Code. This action is proposed to implement, interpret, and make specific sections 38501, 38505, 38510, 38560, 38560.5, 38580, 39002, 39003, 39010, 39017, 39033, 39500, 39600, 39601, 39610, 39650, 39657, 39667, 39701, 40000, 43000, 43000.5, 43009, 43009.5, 43012, 43013, 43017, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43200, 43200.1, 43202, 43203, 43204, 43205, 43205.5, 43206, 43210, 43211, 43212, 43213, 43806, 44004, 44010, 44011, 44012, 44015, and 44017 Health and Safety Code; and Section 28114, Vehicle Code.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW (GOV. CODE, § 11346.5, subd. (a)(3))

This notice concerns staff's proposal for regulatory actions related to on-road medium- and heavy-duty engines, vehicles, and trailers. The sections of the California Code of Regulations (CCR) that are affected and documents incorporated by reference are described below:

Sections Affected:

- Proposed amendment to CCR, title 13, sections 1956.8, 1961.2, 1965, 2036, 2037, 2065, 2112, and 2141.
- The following test procedures are incorporated by reference herein:
 - o Proposed amended test procedure "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," last amended September 1, 2017, incorporated by reference in 13 CCR 1956.8(b) and 2065.
 - o Proposed amended test procedure "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," last amended September 1, 2017, incorporated by reference in 13 CCR 1956.8(d).

- Proposed amended test procedure “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedure for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” last amended September 2, 2015, incorporated by reference in 13 CCR 1961.2(d).
 - Proposed new label specifications entitled, “California Environmental Performance Label Specifications for 2021 and Subsequent Model Year Medium-Duty Vehicles, Except Medium-Duty Passenger Vehicles,” which would be incorporated by reference in 13 CCR 1965.
 - Proposed amended test procedure entitled “California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles,” last adopted October 21, 2014, incorporated by reference in 13 CCR 1965.
- Proposed amendment to CCR, title 17 sections 95300, 95301, 95302, 95303, 95304, 95305, 95306, 95307, 95311, 95662, and 95663. The following test procedures are incorporated by reference herein:
- Proposed amended test procedure entitled “California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles,” last adopted October 21, 2014, incorporated by reference in 17 CCR 95302, 95303, 95304, and new 95663(d).
 - Proposed amended test procedure “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedure for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” last amended September 2, 2015, incorporated by reference in new 17 CCR 95663(d).

Documents Incorporated by Reference (Cal. Code Regs., tit. 1, § 20, subd. (c)(3)):

The following documents are incorporated by reference in the proposed amendment to CCR, Title 13 and Title 17 entitled, “Proposed Regulation Order for Phase 2 Greenhouse Gas Regulations”:

- Sections 1037.135, 1037 150(v), 1037.211 and 1037.515(b), Part 1037, Title 40, Code of Federal Regulations, as last amended by the United States Environmental Protection Agency (U.S. EPA) on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.

The following documents are incorporated by reference in the proposed amended test procedure entitled “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” last amended September 1, 2017:

- Sections 86.1; 86.016-1, 86.004-2, 86.084-4, 86.078-6, 86.007-11, 86.094-14, 86.004-25, 86.004-28, 86.007-30, 86.095-35, 86.085-37, subpart A; sections

86.1301, 86.1362, 86.1370, subpart N; and sections 86.1910, 86.1912, 86.1920, subpart T, Part 86, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.

- Part 1036, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on June 30, 2017, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Sections 1065.10, 1065.15, subpart A; sections 1065.140, 1065.170, subpart B; sections 1065.202, 1065.220, 1065.225, 1065.247, 1065.260, 1065.266, 1065.267, 1065.275, subpart C; sections 1065.303, 1065.340, 1065.341, 1065.345, 1065.360, 1065.365, 1065.366, 1065.370, 1065.375, 1065.390, subpart D; sections 1065.510, 1065.546, 1065.590, subpart F; sections 1065.602, 1065.610, 1065.640, 1065.642, 1065.645, 1065.650, 1065.655, 1065.660, 1065.665, 1065.667, 1065.675, 1065.680, 1065.690, subpart G; sections 1065.735, 1065.750, subpart H; section 1065.845, subpart I; subpart K; and subpart L, Part 1065, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Subpart A; section 1068.101, subpart B; and subpart E, Part 1068, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.

The following documents are incorporated by reference in the proposed amended test procedure entitled "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," last amended September 1, 2017:

- Sections 86.1; 86.016-1, 86.004-2, 86.084-4, 86.078-6, 86.008-10, 86.094-14, 86.004-25, 86.004-28, 86.007-30, 86.095-35, 86.085-37, subpart A; and section 86.1301, subpart N, Part 86, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.
- Part 1036, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on June 30, 2017, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Sections 1065.10, 1065.15, subpart A; sections 1065.140, 1065.170, subpart B; sections 1065.202, 1065.220, 1065.225, 1065.247, 1065.260, 1065.266, 1065.267, 1065.275, subpart C; sections 1065.303, 1065.340, 1065.341, 1065.345, 1065.360, 1065.365, 1065.366, 1065.370, 1065.375, 1065.390, subpart D; sections 1065.510, 1065.546, 1065.590, subpart F; sections 1065.602, 1065.610, 1065.640, 1065.642, 1065.645, 1065.650, 1065.655, 1065.660, 1065.665, 1065.667, 1065.675, 1065.680, 1065.690, subpart G; sections 1065.735, 1065.750, subpart H; section 1065.845, subpart I; subpart K; and subpart L, Part 1065, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Subpart A; section 1068.101, subpart B; and subpart E, Part 1068, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016,

or on the date otherwise specified by each of the aforementioned provisions of Title 40.

- Section 27156, Chapter 5, Division 12, California Vehicle Code.

The following documents are incorporated by reference in the proposed amended test procedure entitled “California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles,” adopted October 21, 2014:

- Subpart S, Part 86, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.
- Part 1037, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on June 30, 2017, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Part 1066, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Subparts A and E, Part 1068, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- “California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems,” as adopted on September 1, 2017.

The following documents are incorporated by reference in the proposed amended test procedure entitled “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedure for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” last amended September 2, 2015:

- Section 86.143-96, subpart B; and sections 86.1801-12, 86.1802-01, 86.1803-01, 86.1805-17, , 86.1820-01, 86.1823-08, 86.1838-01, 86.1844-01, 86.1845-04, 86.1846-01, 86.1848-10, 86.1865-12, 86.1866-12, 86.1867-12, 86.1868-12, 86.1869-12, 86.1870-12, subpart S, Part 86, Title 40, Code of Federal Regulations, last amended by the U.S. EPA on October 25, 2016.
- Part 1066, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016, or on the date otherwise specified by each of the aforementioned provisions of Title 40.
- Section 600.002, subpart A, Part 600, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.
- Proposed new label specifications entitled, “California Environmental Performance Label Specifications for 2021 and Subsequent Model Year Medium-Duty Vehicles, Except Medium-Duty Passenger Vehicles.”

The following documents are incorporated by reference in the proposed adopted test procedure entitled, “California Environmental Performance Label Specifications for 2021 and Subsequent Model Year Medium-Duty Vehicles, Except Medium-Duty Passenger Vehicles”:

- Sections 86.1819-14 and 86.1803-01, subpart S, Part 86, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.

- Appendix VI, Part 600, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on July 6, 2011.
- Section 1036.801, subpart I, Part 1036, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.
- Section 1037.801, subpart I, Part 1037, Title 40, Code of Federal Regulations, as last amended by the U.S. EPA on October 25, 2016.

Background and Effect of the Proposed Regulatory Action:

CARB is mandated to reduce GHG emissions in California. In 2006, the Legislature passed and the Governor signed the Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32. AB 32 requires CARB to enact regulations to achieve the level of statewide GHG emissions in 1990 by 2020. AB 32 was followed by Senate Bill (SB) 32 in 2016. This bill requires CARB to enact regulations to ensure that statewide GHG emissions are further reduced to 40 percent below the 1990 level by 2030. In addition, California Health and Safety Code section 38560 directs CARB to “adopt rules and regulations ... to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources ... subject to the criteria and schedules set forth in this part.”

In 2008, the Board approved the California Tractor-Trailer GHG Regulation, and it became effective in 2010. The regulation reduced the fuel consumption and GHG emissions from long-haul tractor-trailers traveling on California highways by requiring tractor-trailer fleet owners to improve the aerodynamic performance and reduce the tire rolling resistance of both their tractors and their trailers.

In 2011, U.S. EPA and the United States Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) jointly adopted the first ever GHG emission standards and fuel economy standards for heavy-duty engines and vehicles, referred to as the Heavy-Duty GHG Phase 1 regulation (Phase 1). Phase 1 requires both engine and vehicle manufacturers to employ more efficient components and systems, such as engine friction reduction, after treatment optimization, low temperature exhaust gas recirculation, turbo compounding, vehicle mass reduction, and idling reduction technology. Phase 1 also requires improvements in vehicle aerodynamics and installing fuel-efficient, low rolling resistance tires. The Phase 1 standards took effect with MY 2014 tractors, vocational vehicles, and Class 2b/3 pick-up trucks and vans (PUVs). They did not set standards for trailers. In 2013, CARB approved for adoption California Phase 1 regulations identical to the federal Phase 1 regulations. This provided California (through CARB) the authority to certify engines and vehicles to the Phase 1 standards, as well as to enforce them.

On October 25, 2016, U.S. EPA and NHTSA jointly adopted the Phase 2 standards to build on the Phase 1 standards and achieve additional GHG reductions. The Phase 2 standards follow the same regulatory structure as the Phase 1 standards. GHG emission standards are set for tractors, vocational vehicles, and PUVs. Separate engine standards are also established for the engines used in tractors and vocational vehicles. In addition, the Phase 2 standards mark the first time the emissions resulting

from trailers have been regulated at the federal level. The Phase 2 standards are more technology-forcing than the Phase 1 standards, requiring manufacturers to improve existing technologies or develop new technologies to meet the standards. The progressively more stringent Phase 2 standards are phased in from 2021 to 2027 for tractors, vocational vehicles, and PUVs. For trailers, the federal standards are phased in from 2018 through 2027. To meet these standards, manufacturers will look to improve the performance of the Phase 1 technologies listed above. In addition, Phase 2 will require further GHG emission reductions by employing new and advanced technologies, such as engine waste-heat recovery, hybrids, fully electric vehicles, advanced transmissions, intelligent vehicle controls, heat rejection management, electrification of ancillary equipment, and other technologies. Further improvements in vehicle aerodynamics and low rolling resistance tires will also be needed. Trailer manufacturers will look to aerodynamic technologies, including skirts, and rear fairings, as well as low-rolling resistance tires, automatic tire inflation systems, and weight reducing materials to meet the Phase 2 trailer standards.

Staff is proposing the adoption of new, more stringent GHG emission standards for medium- and heavy-duty vehicles and trailers that largely align with the federal Phase 2 GHG standards. Staff is also proposing amendments to the Tractor-Trailer GHG regulation to harmonize with the Phase 2 trailer standards. The two regulatory proposals are briefly summarized below.

1. New Phase 2 GHG Emission Standards

In this rulemaking action, staff is proposing the adoption of new regulations, collectively referred to as the California Phase 2 regulations, that would establish new GHG emission standards for trailers, amend existing regulations to establish more stringent GHG standards applicable to tractors, vocational vehicles, PUVs, and medium-and heavy-duty engines, and amend requirements for glider vehicles, glider engines, and glider kits. The proposed new regulations and amendments would align California's GHG emission standards and test procedures with those of the federal Phase 2 GHG regulations in structure, timing, and stringency, providing nationwide consistency for engine and vehicle manufacturers. Under the Phase 1 standards, CARB certification staff issue an EO for any engine or vehicle family that has demonstrated compliance with the federal Phase 1 GHG regulation and has been issued a federal Certificate of Conformity by U.S. EPA (i.e., it is "deemed to comply"). The proposed California Phase 2 regulations would not include "deemed-to-comply" provisions. Manufacturers would be required to submit information directly to CARB to certify their engines, vehicles, and trailers with the California Phase 2 GHG program and CARB would independently review the required certification documents before CARB issues an Executive Order. There would be some minor differences between the California Phase 2 regulations and the federal Phase 2 regulations. Specifically, the California Phase 2 proposal would:

- Include language strengthening the statement that manufacturers provide with their certification submittals. Manufacturers would need to unconditionally certify that the information submitted in certification packages is accurate, and that it describes engines and vehicles as built;

- Require tractors and vocational vehicles to have specific emission control identifiers included on their emission control labels for technologies that can be visually inspected;
- Require the engine family to be included in the vehicle certification documentation;
- Require additional air conditioning (A/C) system information to be included in vehicle certification documentation;
- Establish a credit adjustment protocol that would incentivize the use of low global warming potential (GWP) refrigerants, incentivize the sale of plug-in hybrid electric vehicles (PHEV) to meet a minimum all-electric range and ensure no increases oxides of nitrogen (NOx) emission, and incentivize transit buses manufacturers not to certify to the less stringent custom chassis standards;
- Require Class 2b/3 PUVs to display consumer labels;
- Continue to include ethane in the calculation of non-methane hydrocarbon emissions;
- Begin trailer standards two years later than required by the federal Phase 2 regulation to accommodate the timing of California's rulemaking process;
- Continue to utilize California's current anti-tampering provisions, which are more stringent than the federal provisions, for Phase 2 certified engines and vehicles; and
- Include CARB's right of entry to any premises owned, operated, used, leased, or rented by a person to repair or service any heavy-duty engine or heavy-duty vehicle for which California emissions standards have been adopted and which is situated on the premises for the purpose of emission-related maintenance, repair or service. The right-to-entry includes, but is not limited to, verification of manufacturer's warranty reporting and claims through inspecting repair records, records that relate to vehicular or engine emissions, vehicles, and engines, and may require the on-premises securing of samples of emissions from a vehicle or engine at any repair facility.

2. *Amendments to CARB's Existing Tractor-Trailer Regulation*

The proposed amendments to the Tractor-Trailer GHG Regulation would provide trailer fleet owners the option of complying with the Tractor-Trailer GHG Regulation through the purchase of a Phase 2 certified trailer, or the installation of Phase 2 aerodynamic technologies and low-rolling resistance tires that are components of Phase 2 certified trailer configurations. This proposed change does not weaken or strengthen the existing requirements of the Tractor-Trailer GHG Regulation, but solely provides another pathway to compliance.

CARB may also consider other changes to the sections affected, as listed earlier in this notice, during the course of this rulemaking process.

Objectives and Benefits of the Proposed Regulatory Action:

The proposed California Phase 2 regulations would allow CARB to verify and enforce the Phase 2 regulatory standards, thereby leading to higher levels of compliance, which would ensure the program's GHG emission benefits occur. Specifically, the exclusion of "deemed-to-comply" provisions in the proposed California Phase 2 rule would allow staff's timely access to certification documentation for review to ensure compliance. California's active role in certifying engines, vehicles, and trailers is critical to ensure the benefits of the California Phase 2 GHG program, especially given the recent change in the federal administration, and the subsequent call to defund programs to combat climate change, and to substantially reduce U.S. EPA staffing levels. Unlike the Phase 1 GHG program, California cannot rely on the federal administration to review applications for engine and vehicle certification.

As detailed further below, the proposed minor California differences from the federal Phase 2 program would be necessary to ease enforcement, align with existing California programs to preserve the benefits of California incentive programs and regulations, and provide incentives to bring low-emission technologies to market:

- The proposed A/C system reporting would allow staff to better enforce the A/C system leakage requirements. This is important because refrigerants have significantly higher GWP than carbon dioxide.
- The low-GWP proposal would provide incentives for manufacturers to develop and implement A/C refrigerants that have low GWPs in heavy-duty vehicles. Low-GWP refrigerants have been widely used in the light-duty sector, but have not been adopted in the heavy-duty sector due to high capital investment cost. The use of low-GWP refrigerants could significantly decrease the global warming impact of refrigerant leakage emissions.
- The proposed additional requirement of showing no NOx increase and meeting a minimum all-electric range in order for PHEVs to receive an advanced technology multiplier could prevent NOx increases and spur the development of better hybrids.
- The transit bus custom chassis proposal would incentivize the introduction of advanced zero-emission technology in the transit bus sector.
- The proposed consumer label for Class 2b/3 PUVs may influence consumers to buy more fuel-efficient, lower-emitting vehicles as they would be able to compare vehicle choices based on the provided GHG and smog ratings on the required label.

The proposed amendments to the California Tractor-Trailer GHG Regulation would give owners of trailer fleets the option of using Phase 2 certified trailers, and the aerodynamic equipment and low-rolling resistance tires that are components of federal Phase 2 certified trailers, to comply with the regulation.

CARB staff worked closely with U.S. EPA and NHTSA over the past several years on the development of Phase 2 GHG final rule for new 2021 (2018 for trailers) and subsequent Model Year (MY) heavy-duty engines and vehicles. CARB staff submitted

extensive comments on U.S. EPA's Notice of Proposed Rulemaking (NPRM) for Phase 2. U.S. EPA staff met with CARB staff numerous times to discuss our comprehensive NPRM comments in more detail. In response to our input, U.S. EPA modified their proposal. The outcome is a Phase 2 program that California can support and that will allow manufacturers to continue to build a single fleet of vehicles and engines for the U.S. market.

CARB staff developed the proposed regulatory actions through an extensive public process, as described below.

- Staff created a public webpage where related symposium and workshop materials as well as relevant information were posted to keep stakeholders up to date on the latest regulatory development efforts.
- On April 22, 2015, CARB staff held a symposium on California's development of Phase 2 GHG emission standards in Diamond Bar, California. Representatives from environmental government agencies, engine manufacturers, component suppliers, environmental policy and technical research organizations, and trucking fleets participated in panel discussions and presented the latest information on technology options expected for use in the post-2020 timeframe to reduce fuel consumption, improve tractor-trailer efficiency, and assist efforts to achieve California's climate goals.
- Staff held two public workshops in Sacramento on February 6, 2017, and August 31, 2017, to solicit input on areas where the California Phase 2 regulation may differ from the federal Phase 2 GHG. The workshops were webcast.
- In addition to these public workshops, staff had numerous meetings and continued discussions with environmental groups, engine, transmission, and vehicle (including bus and refuse truck) manufacturers, and associations such as the American Council for Energy- Efficient Economy (ACEEE), Truck & Engine Manufacturers Association (EMA), AutoAlliance, Motor Vehicle Air Conditioning (MVAC) community, Autocar Truck, New Flyer Industries, and others.

These pre-rulemaking discussions gave an opportunity for government, industry, and environmental stakeholders to engage in an open discussion regarding efforts to further reduce GHG emissions from on-road heavy-duty vehicles and engines in anticipation of California's release of the proposed Phase 2 regulations and amendments to the California Tractor-Trailer GHG Regulations.

Comparable Federal Regulations:

Staff is proposing California Phase 2 regulations that largely align with the U.S. EPA and NHTSA's Phase 2 regulations (Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2, 81 Federal Register 73478-74274, (October 25, 2016)) with minor California differences as discussed earlier in this notice. The federal Phase 2 regulations establish more stringent GHG emission standards for new medium- and heavy-duty engines and vehicles, and for the first time, include GHG emission standards for trailers. The federal Phase 2 GHG emission standards phase in between model year 2018 and 2027 for trailers and MY 2021 and 2027 for medium- and heavy-duty engines and vehicles.

California's existing Tractor-Trailer GHG regulation currently applies to a subset of trailers that will be regulated by the federal Phase 2 GHG standards, but applies to fleet owners rather than trailer manufacturers. The proposed amendments to the California Tractor-Trailer GHG Regulation would allow another pathway for trailer fleet owners to comply with the Tractor-Trailer GHG Regulation through the purchase of a Phase 2 certified trailer, or the installation of Phase 2 aerodynamic technologies and low-rolling resistance tires that are components of Phase 2 certified trailer configurations. This is equivalent to the existing requirements that allow compliance through the purchase of a SmartWay designated trailer or SmartWay verified aerodynamic devices and low-rolling resistance tires.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory actions, staff conducted a search for any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations. The California Phase 2 GHG regulations build upon the California Phase 1 GHG regulations approved for adoption by CARB in 2013.

MANDATED BY FEDERAL LAW OR REGULATIONS (Gov. Code, §§ 11346.2, subd. (c), 11346.9)

As discussed earlier in this notice, the proposed California Phase 2 requirements largely align with the requirements of the corresponding federal Phase 2 GHG regulations with the exception of a few minor distinctions. The existing California Tractor-Trailer GHG regulation is equivalent to the federal Phase 2 trailer standards for MY 2018 through 2020 long box van trailers, and the federal Phase 2 trailer standards for subsequent years are more stringent than the current California Tractor-Trailer GHG regulation requirements. The proposed amendments to the California Tractor-Trailer GHG regulation would allow fleet owners to comply with the existing California Tractor-Trailer GHG regulation through the purchase of Phase 2-certified trailers.

OTHER STATUTORY REQUIREMENTS (Gov. Code, § 11346.5m subd. (a)(4)) (only if applicable)

As discussed above, AB 32 requires CARB to enact regulations to achieve the level of statewide GHG emissions in 1990 by 2020, and SB 32 requires CARB to enact regulations to ensure that statewide GHG emissions are further reduced to 40 percent below the 1990 level by 2030. In addition, California Health and Safety Code section 38560 directs CARB to "adopt rules and regulations ... to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources ... subject to the criteria and schedules set forth in this part."

DISCLOSURE REGARDING THE PROPOSED REGULATION

Fiscal Impact/Local Mandate Determination Regarding the Proposed Action (Gov. Code, § 11346.5, subds. (a)(5)&(6)):

The determinations of the Board's Executive Officer concerning the costs or savings incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulatory action are presented below.

Local Agencies and School Districts:

Under Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Executive Officer has determined that the proposed regulatory action to adopt the California Phase 2 GHG regulations would not impose a mandate on any local agency or school district, whether or not the mandate is reimbursable, but the regulations would create costs to local agencies and school districts, but these costs would not be reimbursable by the State under Government Code, title 2, division 4, part 7, (commencing with section 17500). The direct costs from the proposed California Phase 2 regulations on regulated manufacturers would be passed on to the heavy-duty fleets who purchase California Phase 2-certified heavy-duty vehicles via increased vehicle prices. Thus, there would be cost impacts on local government fleets that purchase those vehicles. The estimated costs for all local agencies are projected by fiscal year in Table 1 (costs were rounded to nearest \$1,000). Note that the Table 1 costs do not include savings in fuel that local government agency fleets would benefit from due to the more fuel-efficient Phase 2 vehicles. The upfront costs of Phase 2 technologies result in commercially acceptable payback periods of 2 to 5 years, with a 2-year or shorter payback for most. These savings would offset the costs shown in Table 1.

Table 1: Estimated Annual Cost to Local Government Agencies Statewide for the Proposed Regulatory Action (2017\$)¹

Fiscal Year	Annual Cost (\$)
Current	0
2018/2019	0
2019/2020	0
2020/2021	84,000
2021/2022	635,000
2022/2023	699,000
2023/2024	721,000
2024/2025	793,000
2025/2026	551,000
2026/2027	552,000
2027/2028	610,000
2028/2029	611,000
Total Cost (\$)	5,255,000

¹ Note that the Table 1 costs do not include savings in fuel that local agency fleets would benefit from due to operating more fuel-efficient Phase 2 vehicles. These savings would offset the costs shown in Table 1.

The proposed amendments to the California Tractor-Trailer GHG regulation would not impose additional costs on local agencies or school districts.

Other Non-Discretionary Costs or Savings on Local Agencies:

No additional costs or savings to local agencies beyond those addressed above are expected.

State Agencies:

Under Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Executive Officer has determined that the proposed regulatory action to adopt the Phase 2 GHG regulations would result in costs to CARB due to the anticipated hiring of additional staff, as well as to other state agencies that purchase California Phase 2-certified heavy-duty vehicles via increased vehicle prices.² This regulatory action would not result in savings to any State agency, or costs or savings in federal funding to the State.

The proposed regulatory action is anticipated to require CARB hiring of 15 additional positions (two Air Pollution Specialists (APS), 11 Air Resources Engineers (ARE), one Staff Air Pollution Specialist (SAPS), and one Air Resources Supervisor I (ARS I)) to support the proposed California Phase 2 regulation implementation and enforcement. The cost for an ARS I position (salary + benefit + overhead) is \$202,000 for the first year with an annual cost in subsequent years of \$201,000. The cost for a SAPS position (salary + benefit + overhead) is \$187,000 for the first year with an annual cost in subsequent years of \$186,000. The cost for an ARE position (salary + benefit + overhead) is \$175,000 for the first year with an annual cost in subsequent years of \$174,000. The cost for an APS position (salary + benefit + overhead) is \$165,000 for the first year with an annual cost in subsequent years of \$164,000. The hiring of those 15 requested positions would be spread out from 2018 to 2022, specifically: one APSs and two AREs starting in 2018-2019, two additional AREs and one ARS I starting in 2019-2020, five additional AREs starting in 2020-2021, one additional APS and one additional ARE starting in 2021-2022, and lastly one SAPS and one additional ARE starting in 2022-2023.

There would also be cost impacts on state government fleets that purchase California Phase 2-certified heavy-duty vehicles. Table 2 shows the annual projected costs to all state agencies due to the proposed regulatory action by fiscal year (costs were rounded to nearest \$1,000).

² Note that costs to State agencies for purchasing more expensive Phase 2 vehicles will be offset over time by the fuel savings associated with Phase 2 technologies.

Table 2: Estimated Additional Annual Statewide Costs to State Agencies for the Proposed Regulatory Action (2017\$)³

Fiscal Year	Annual Cost (\$)
Current	0
2018/2019	515,000
2019/2020	1,064,000
2020/2021	1,964,000
2021/2022	2,479,000
2022/2023	2,860,000
2023/2024	2,865,000
2024/2025	2,889,000
2025/2026	2,809,000
2026/2027	2,809,000
2027/2028	2,828,000
2028/2029	2,829,000
Total Cost (\$)	25,910,000

The proposed amendments to the California Tractor-Trailer GHG regulation would not impose additional costs on state agencies.

Cost or Savings in Federal Funding to the State:

No costs or savings in federal funding is anticipated.

Housing Costs (Gov. Code, § 11346.5, subd. (a)(12)):

The Executive Officer has also made the initial determination that the proposed regulatory actions will not have a significant effect on housing costs.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

Results of The Economic Impact Analysis/Assessment (Gov. Code, § 11346.5, subd. (a)(10)):

A detailed assessment of the economic impacts of the proposed regulatory action can be found in the staff's Initial Statement of Reasons (ISOR), or Staff Report.

³ Note that the Table 2 costs do not include savings in fuel that state agency fleets would benefit from due to operating more fuel-efficient Phase 2 vehicles. These savings would offset the costs shown in Table 2.

NON-MAJOR REGULATION: Statement of the Results of the Economic Impact Assessment (EIA):

The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment:

GHGs are the primary cause of anthropogenic climate change. Climate change is already having dramatic impacts in California in the form of reduced snowpack, more intense drought, increased wildfire intensity, and sea level rise. Human-caused climate change threatens both public health and public welfare. Extreme weather events, changes in air quality, increases in food- and water-borne pathogens, and increases in temperatures are anticipated to have adverse health effects. GHG emissions can remain in the atmosphere for decades to millennia. Transportation activities, in particular, were the largest contributor to total California GHG emissions in 2012 (37 percent of total emissions). The federal Phase 2 GHG program will provide substantial GHG reductions which will help California achieve the state's GHG reduction goals. Adoption of the California Phase 2 regulation will give California the ability to certify and enforce the federal Phase 2 standards in California, and with proposed minor distinctions, help preserve the air quality benefits of California's incentive and regulatory programs.

The inclusion of the emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits may prevent an increase in NOx and toxic diesel particulate matter emissions from these vehicles, which would result in health benefits for individuals in California.

Effect on Jobs/Businesses:

The Executive Officer has determined that the proposed regulatory action would not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. A detailed assessment of the economic impacts of the proposed regulatory action can be found in the Economic Impact Analysis in the Staff Report.

Benefits of the Proposed Regulation:

The proposed California Phase 2 regulations are intended to 1) harmonize with the federal Phase 2 program in terms of structure, timing, and stringency so engine/vehicle/trailer manufacturers have essentially one set of standards with which to comply, 2) allow CARB to verify and enforce federal Phase 2 regulatory standards, thereby potentially leading to higher levels of compliance, and 3) establish minor differences in requirements that are necessary to ease enforcement, align with existing California programs, and provide incentives to bring advanced technologies with low NOx emissions to market. The proposed amendments to the California Tractor-Trailer GHG Regulation would give owners of trailer fleets the option of using Phase 2 certified

trailers, and the aerodynamic equipment and low-rolling resistance tires that are components of federal Phase 2 certified trailers, to comply with the regulation. A summary of these benefits is provided. Please refer to “Objectives and Benefits of the Proposed Regulatory Action,” under the Informative Digest of Proposed Action and Policy Statement Overview Pursuant to Government Code 11346.5(a)(3) discussed earlier in this notice.

Business Report (Gov. Code, §§ 11346.5, subd. (a)(11); 11346.3, subd. (d)):

In accordance with Government Code sections 11346.5, subdivisions (a)(11) and 11346.3, subdivision (d), the Executive Officer finds the reporting requirements of the proposed regulatory actions which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Cost Impacts on Representative Private Persons or Businesses (Gov. Code, § 11346.5, subd. (a)(9)):

In developing this regulatory proposal, staff evaluated the potential economic impacts on representative private persons or businesses. The proposed California Phase 2 regulations would impose additional compliance costs on the regulated engine/vehicle/trailer manufacturers and the increased costs would be passed on to the California heavy-duty vehicle fleets that purchase the California Phase 2-certified vehicles and trailers. Cost impacts on a representative business were estimated based on increased costs per California private heavy-duty fleet. Table 3 shows the average annual cost per impacted private business from 2018 to 2028. Phase 2 costs will be offset over time by the fuel savings associated with Phase 2 technologies.

Table 3: Average Annual Compliance Cost per Impacted Business from 2018 to 2028 (2017\$)⁴

Calendar Year	Annual Statewide Cost per Private Business (\$/business)
2018	0
2019	0
2020	5.64
2021	42.51
2022	46.71
2023	48.22
2024	53.05
2025	36.72
2026	36.80
2027	40.70
2028	40.79

⁴ Note that the Table 3 costs do not include savings in fuel that heavy-duty vehicle fleets would benefit from due to operating more fuel efficient Phase 2 vehicles. These savings would offset the costs shown in Table 3.

The proposed amendments to the California Tractor-Trailer regulation would have no cost impacts on California private businesses.

Effect on Small Business (Cal. Code Regs., tit. 1, § 4, subds. (a) and (b)):

The Executive Officer has also determined under California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses. The cost impacts on small businesses, which are small California heavy-duty fleets, would be the same as the estimated cost impacts on a representative private fleet as described in Table 3 above.

Alternatives Statement (Gov. Code, § 11346.5, subd. (a)(13)):

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law. Alternatives to the proposed rulemaking are described in the Staff Report.

ENVIRONMENTAL ANALYSIS

CARB, as the lead agency for the proposed regulation, has concluded that this action is exempt from CEQA, as described in CEQA Guidelines §15061, because the action is both an Action Taken by Regulatory Agencies for Protection of the Environment (as described in CEQA Guidelines §15308 for “class 8” exemptions); and it is also exempt as described in CEQA Guidelines §15061(b)(3) (“common sense” exemption) because it can be seen with certainty that there is no possibility that the proposed action may result in a significant adverse impact on the environment. A brief explanation of the basis for reaching this conclusion is included in Chapter V of the Staff Report.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alternativo u otro idioma;
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulatory action may be directed to the agency representative, Alex Santos, Staff Air Pollution Specialist, On-Road Heavy Duty Diesel Section, at (626) 575-6682 or (designated back-up contact) Mitzi Magtoto, Air Resources Engineer, Strategic Planning and Development Section, at (916) 323-8975.

AVAILABILITY OF DOCUMENTS

CARB has prepared a Staff Report (i.e., the Initial Statement of Reasons (ISOR)) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: Proposed California Greenhouse Gas (GHG) Emissions Standards for Medium- and Heavy-Duty Engines and Vehicles (Phase 2) and Proposed Amendments to the Tractor-Trailer GHG Regulation.

Copies of the Staff Report and the full text of the proposed regulatory language, with amendments in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on CARB's website listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990, on December 19, 2017.

Further, the agency representative to whom nonsubstantive inquiries concerning the proposed administrative action may be directed is Bradley Bechtold, Regulations Coordinator, (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may take action to approve for adoption the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also approve for adoption the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action. If this occurs, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before final adoption.

The public may request a copy of the modified regulatory text from CARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990.

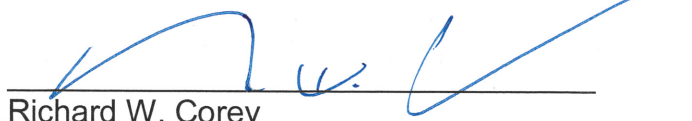
FINAL STATEMENT OF REASONS AVAILABILITY

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on CARB's website listed below.

INTERNET ACCESS

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on CARB's website for this rulemaking at <http://www.arb.ca.gov/regact/2018/phase2/phase2.htm>

CALIFORNIA AIR RESOURCES BOARD



Richard W. Corey
Executive Officer

Date: December 5, 2017

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.